WE CLAIM

1. A method of fabricating a phased array narrow band wavelength division multiplexer including an arrayed waveguide, a slab waveguide and a transition region between the array waveguide and the slab waveguide comprising:

etching the transition region with a reactive ion etch forming vertically tapered waveguides between the arrayed waveguides.

2. The method of claim 1, wherein the reactive ion etch includes at least one polymerizing gas.

3. The method of claim 2, wherein the polymerizing etch gas is a single component polymerizing gas chosen from the group consisting of CF_4, C_2F_4, C_2F_6, C_3F_6, C_3F_8 and C_4F_8 and CHF_3.

4. The method of claim 2, wherein the polymerizing etch gas is a gas mixture comprising multiple components chosen from the group consisting of CF_4, C_2F_4, C_2F_6, C_3F_6, C_3F_8, C_4F_8, CHF_3, SF_6, Cl_2, H_2 and CCl_3F.

5. The method of claims 3 or 4, wherein the transition region includes a doped silica core.

6. The method of claim 4, wherein the spacing between individual waveguides in the arrayed waveguide is smaller at the junction between the arrayed waveguide and the slab waveguide than away from the junction.

7. A phased array narrow band wavelength division multiplexer made by the method of claim 1.

8. The phased array narrow band wavelength division multiplexer of claim 6, wherein the height of least one of the vertically tapered waveguides is

essentially the same as the height of the arrayed waveguide at a junction between the arrayed waveguide and the slab waveguide and wherein the height of the at least one vertically tapered waveguide gradually decreases with distance from the junction.

9. The tapered phased array narrow band wavelength division multiplexer of claim 6, wherein the transition region includes a doped silica core.

10. The tapered phased array narrow band wavelength division multiplexer of claim 6, wherein the spacing between individual waveguides in the arrayed waveguide is smaller at a junction between the arrayed waveguide and the slab waveguide than away from the junction.

11. A method of fabricating an optical device having closely spaced waveguides comprising:

etching a transition region with a reactive ion etch to form vertically tapered waveguides between the closely spaced waveguides.